

Appl. No. 09/827,256
Amdt. dated December 30, 2003
Reply to Office Action of October 1, 2003

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Amendments to the Claims:

Please cancel claims 1-4, 6, 7, 9, 10, 12-16, 19-23, 26, 28-31, 33, 43, 44, 46, and 49-52 and please amend claims 5, 11, 17, 18, 24, 27, 32, 45, 47, and 53, as follows.

This listing of claims will replace all prior versions, and listings of claims in the application.

Listing of Claims:

1. (Canceled)

2. (Canceled)

3. (Canceled)

4. (Canceled)

5. (Currently Amended) ~~The method of claim 4~~ A spectral label identification method comprising:
spatially restraining a first spectrally labeled body;
generating a first spectrum from the first body while the first body is spatially restrained;
dispersing the first spectrum from the first body across a sensor surface; and
identifying the first body from the dispersed first spectrum;
spatially restraining a second spectrally labeled body;
generating a second spectrum from the second body while positioning the second body, the first spectrum being different than the second spectrum; and
identifying the second body from the second spectrum, wherein a plurality of spectrally labeled bodies are simultaneously spatially restrained at an array of sites.

6. (Canceled)

7. (Canceled)

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8. The method of claim 5, further comprising sequentially sensing the first and second spectra with a scanning sensor system by moving a sensing field between the bodies.

9. (Canceled)

10. (Canceled)

11. (Amended) The method of claim [[10]] 5, wherein the first and second body are sequentially spatially restrained,

further comprising drawing the first body into an opening by drawing fluid into the opening, expelling the body from the first opening, and drawing the second body into the opening by drawing fluid into the opening, the signal generating steps being performed while the first and second bodies are sequentially disposed within the opening, and

drawing fluid into an array of openings and expelling fluid from the array of opening so as to sequentially restrain a plurality of arrays of bodies.

12. (Canceled)

13. (Canceled)

14. (Canceled)

15. (Canceled)

16. (Canceled)

17. (Amended) ~~A method as claimed in claim 16~~ A method comprising:
spatially restraining a plurality of spectrally labeled bodies so as to define an
array;

directing a spectrally dispersed image of the array of bodies onto a sensor to sense
spectra generated by the bodies;

identifying the bodies from the spectra sensed by the sensor, wherein the bodies are restrained within an array of openings affixed in a multi-well plate.

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18. (Currently Amended) A method as claimed in claim ~~[[16]]~~ 17, further comprising drawing the array of bodies into the array of opening by drawing fluid into the openings, expelling the array of bodies from the opening by expelling fluid from the openings, and drawing another array of bodies into the array of openings by again drawing fluid into the openings.

19. (Canceled)

20. (Canceled)

21. (Canceled)

22. (Canceled)

23. (Canceled)

24. (Currently Amended) ~~The method of claim 21,~~ A method comprising:
releasing a plurality of bodies in a fluid;
spatially restraining a first body within the fluid by transmitting restraining energy
through the fluid toward the body;
generating a first spectrum from the spatially restrained first body; and
identifying the first body from the first spectrum.
wherein the spatially restraining step is performed with a focused laser beam, the
laser beam acting as an optical tweezers, and
wherein the focused laser beam is configured to restrain a plurality of the bodies simultaneously.

25. (Original) The method of claim 24, wherein the trap is elongated so that the restrained bodies are arranged along a line.

26. (Canceled)

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27. (Currently Amended) The method of claim ~~[[20]]~~ 24, wherein the restrained body generates the spectrum in response to the restraining energy.

28. (Canceled)

29. (Canceled)

30. (Canceled)

31. (Canceled)

32. (Currently Amended) The method of claim ~~[[31]]~~ 24, further comprising moving the restrained body within the fluid by moving the restraining energy or the fluid, sweeping the restraining energy through the fluid to move the first body toward a first site, sweeping the restraining energy through the fluid to move a second body toward a second site, and inhibiting transmission of the restraining energy between the first and second sites.

33. (Canceled)

34. (Original) A multiplexed assay system comprising:
a support structure having an array of sites;
a plurality of bodies, each body having a label for generating an identifiable spectrum in response to excitation energy, the bodies being restrainingly receivable at the sites;
and
an optical train imaging at least one site on a sensor surface, the optical train including a wavelength dispersive element.

35. (Original) The assay system of claim 34, wherein the sites comprise openings in the support structure.

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36. (Original) The assay system of claim 35, wherein the openings are sized to receive a single body therein so as to separate the individual bodies for discrete imaging.

37. (Original) The assay system of claim 36, wherein the bodies and support structure are exposed to a fluid, and further comprising means for restraining the bodies within the openings.

38. (Original) The assay system of claim 37, wherein the restraining means releasably restrains the bodies within the openings, releasing of the bodies allowing the bodies to move with the fluid and out of the openings.

39. (Original) The assay system of claim 35, further comprising a pump coupled to the openings for at least one of:
drawing fluid and the bodies into the openings, and
expelling fluid and the bodies out of the openings.

40. (Original) The assay system of claim 34, wherein the sites comprise a discrete array of a material capable of bonding to the bodies.

41. (Original) The assay system of claim 34, wherein the optical train comprises a scanner for moving a sensing field among the sites.

42. (Original) The assay system of claim 34, wherein the sites are separated sufficiently along a dispersive axis of the dispersive element to avoid excessive overlap of dispersed spectra generated simultaneously by the bodies at the sites.

43. (Canceled)

44. (Canceled)

45. (Currently Amended) ~~The multiplexed assay system of claim 43, A~~
multiplexed assay system comprising:

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a plurality of bodies released in a fluid, the bodies having labels for generating identifiable spectra;

an energy transmitter coupled to the fluid so as to spatially restrain at least one body with a restraining energy beam; and

a sensor oriented to receive the spectrum from the at least one body wherein the at least one body generates the spectrum in response to the restraining energy beam.

46. (Canceled)

47. (Currently Amended) The multiplexed assay system of claim ~~[[43]]~~ 45, further comprising a scanner coupled to the restraining energy beam so as to move the restraining energy beam within the fluid.

48. (Original) The multiplexed assay system of claim 47, wherein an optical train images the site toward the sensor, the energy transmitter configured to move the at least one body toward the site.

49. (Canceled)

50. (Canceled)

51. (Canceled)

52. (Canceled)

53. (Currently Amended) The multiplexed assay system of claim ~~[[43]]~~ 45, wherein the restraining energy beam is configured to restrain a plurality of the bodies along a line.

54. (Original) The multiplexed assay system of claim 53, wherein an optical train directs a dispersed image of the bodies from along the line onto the sensor surface, the dispersed image having a dispersion axis at an angle to the line.